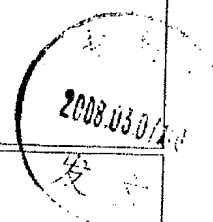




# 中华人民共和国国家知识产权局

100101 北京市朝阳区慧忠路5号远大中心B座18层 隆天国际知识产权代理有限公司 王玉双	发文日
申请号: 2005800080753	
申请人: 格伦德福斯联合股份公司	
发明名称: 确定泵单元运行时的故障的方法	



## 第一次审查意见通知书

(进入国家阶段的 PCT 申请)

1. ☒ 应申请人提出的实审请求, 根据专利法第 35 条第 1 款的规定, 国家知识产权局对上述发明专利申请进行实质审查。

☐ 根据专利法第 35 条第 2 款的规定, 国家知识产权局专利局决定自行对上述发明专利申请进行审查。

2. ☒ 申请人要求以在:

IP 专利局的申请日 2004 年 02 月 11 日为优先权日,  
专利局的申请日 年 月 日为优先权日,  
专利局的申请日 年 月 日为优先权日。

3. ☐ 申请人于 年 月 日和 年 月 日以及 年 月 日提交了修改文件。

经审查, 申请人于 年 月 日提交的 不符合专利法实施细则第 51 条第 1 款的规定。

☐ 审查是针对原始提交的国际申请的中文译文进行的。

☒ 审查是针对下述申请文件进行的:

☒ 说明书 第 页, 按照进入中国国家阶段时提交的国际申请文件的中文文本;  
第 页, 按照专利性国际初步报告附件的中文文本;  
第 页, 按照依据专利合作条约第 28 条或 41 条规定所提交的修改文件;  
第 1-12 页, 按照依据专利法实施细则第 51 条第 1 款规定所提交的修改文件;  
第 页, 按照 年 月 日所提交的修改文件。

☐ 权利要求 第 项, 按照进入中国国家阶段时提交的国际申请文件的中文文本;  
第 项, 按照依据专利合作条约第 19 条规定所提交的修改文件的中文文本;  
第 项, 按照专利性国际初步报告附件的中文文本;  
第 项, 按照依据专利合作条约第 28 条或 41 条规定所提交的修改文件;  
第 1-16 项, 按照依据专利法实施细则第 51 条第 1 款规定所提交的修改文件;  
第 项, 按照 年 月 日所提交的修改文件。

☐ 附图 第 1-5 页, 按照进入中国国家阶段时提交的国际申请文件的中文文本;  
第 页, 按照专利性国际初步报告附件的中文文本;  
第 页, 按照依据专利合作条约第 28 条或 41 条规定所提交的修改文件;  
第 页, 按照依据专利法实施细则第 51 条第 1 款规定所提交的修改文件;  
第 页, 按照 年 月 日所提交的修改文件。



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2006.7



回函请寄: 100088 北京市海淀区蓟门桥西土城路 6 号 国家知识产权局专利局受理处收  
(注: 凡寄给审查员个人的信函不具有法律效力)

## 第一次审查意见通知书正文

申请号：2005800080753

本申请涉及一种确定泵装置运行时的故障的方法，经审查，现提出如下的审查意见。

1、权利要求1中出现了“所述预设值”（见该权利要求倒数第2行），对特征“预设值”作了进一步限定，但该特征在之前并没有出现，因而该权利要求是不清楚的，不符合专利法实施细则第二十条第一款的规定。

2、从属权利要求4-6限定部分中对特征“检测的液压变量”作了进一步限定，但该特征在其引用的前述权利要求的技术方案中并没有出现，因而所述从属权利要求是不清楚的，不符合专利法实施细则第二十条第一款的规定。

3、权利要求7中出现了“ $\omega$ ”（见权利要求书第3页第2行及第12行），但在两处中对该符号的含义说明并不同；方程式（8）中出现了“ $l_r$ ”，但未对其含义作出说明；出现了“所述两个方向”（见权利要求书第3页第19行），对“两个方向”作了进一步限定，但该特征在之前及其引用的前述权利要求的技术方案中并没有出现，因而该权利要求是不清楚的，不符合专利法实施细则第二十条第一款的规定。申请人应在意见陈述书中作出合理解释，若对权利要求进行修改，应注意修改不得超出原权利要求书和说明书记载的范围，同时提醒申请人注意“转子角速度”（见权利要求书第3页第26行）及“所述转速”（见权利要求书第4页第11行）。

4、权利要求8中出现了“优选”（见该权利要求倒数第4行），导致一项权利要求中限定出不同的保护范围；出现了“所述变量”（见该权利要求第1-2行），对特征“变量”作了进一步限定，并对特征“测量的液压变量”（见该权利要求倒数第2行）作了进一步限定，但该特征在其引用的权利要求7的技术方案中并没有出现；对“压力”（见该权利要求第7行）及“输送量”（见该权利要求第7-8行）作了进一步限定，但该特征在方程式（16）和/或（17）中并没有出现；出现的“所述转矩”（见该权利要求第8行）及“该泵模型”（见该权利要求第10行）指代不明；因此，权利要求8不符合专利法实施细则第二十条第一款的规定。

5、权利要求9中对特征“变量”（见该权利要求第1-2行）作了进一步限定，但该

特征在其引用的权利要求7的技术方案中并没有出现，因而该权利要求是不清楚的，不符合专利法实施细则第二十条第一款的规定。

6、权利要求10中出现了“优选”（见该权利要求第2-3行），导致一项权利要求中限定出不同的保护范围；对特征“故障类型”（见该权利要求第1, 5行）及“预设边界值”（见该权利要求第4-5行）作了进一步限定，但该特征在其引用的前述权利要求的技术方案中并没有出现；出现了技术特征“根据权利要求8的方程式以导出 $r_1$ 至 $r_4$ 的几个故障变量”，但是权利要求8（引用的权利要求7）的方程式中并未出现故障变量 $r_1$ 至 $r_4$ ，本领域技术人员难以确定如何导出上述故障变量，因而该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

7、权利要求11中出现了“优选”（见该权利要求第2-3行），导致一项权利要求中限定出不同的保护范围；对特征“故障类型”（见该权利要求第1, 6-7行）及“预设边界值”（见该权利要求第6行）作了进一步限定，但该特征在其引用的前述权利要求1-9的技术方案中并没有出现；对特征“ $r_1$ 至 $r_4$ 面”（见该权利要求第5行）作了进一步限定，但该特征在其引用的前述权利要求中并没有出现，因而该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

8、权利要求12中对特征“故障类型”（见该权利要求第1行）作了进一步限定，但该特征在其引用的前述权利要求1-9的技术方案中并没有出现；出现了表格且表格中各符号/数字含义不清楚，因而该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

9、权利要求13中对特征“测量结果”（见该权利要求第2行）及“被确定的故障”（见该权利要求第3行）作了进一步限定，但该特征在其引用的前述权利要求的技术方案中并没有出现，因而该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

10、权利要求14中对特征“机械-液压泵/马达模型”（见该权利要求第1行）作了进一步限定，但该特征在其引用的前述权利要求1-6的技术方案中并没有出现；对特征“液压系统”（见该权利要求第2行）作了进一步限定，但该特征在其引用的前述权利要求中并没有出现，因而该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

11、权利要求15未间接引用权利要求7时，其公式中符号Q的含义不清楚；另外，权利要求15中对“设备”（见该权利要求第8, 10行）作了进一步限定，但该特征在其引用的权利要求14中并没有出现；出现的“p”（见该权利要求倒数第2行）书写有误，应为“ $p$ ”。因此，该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

12、权利要求16中对特征“故障变量”（见该权利要求第1行）作了进一步限定，但但该特征在其引用的前述权利要求1-9, 11, 13-15的技术方案中并没有出现；对特征“机械-液压方程式”（见权利要求书第6页第10行）、“测得的输送压力和输送量”（见权利要求书第6页第13行）及“三个变量”（见权利要求书第6页第15行）作了进一步限定，但该特征在其引用的前述权利要求中并没有出现；该权利要求在未引用权利要求7时其方程式中符号B, Q,  $\omega$ 等的含义不清楚；另外，方程式（19）中的符号k<sub>c</sub>含义不清楚。因此，该权利要求不清楚，不符合专利法实施细则第二十条第一款的规定。

13、从属权利要求4-7, 10-14, 16本身是一个多项从属权利要求，其引用了在前的多项从属权利要求，因此不符合专利法实施细则第二十三条第二款的规定。

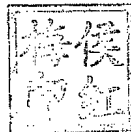
14、本申请的说明书中出现了引用权利要求的语句（见说明书第1页第7, 25-26行, 第5页第26行, 第6页第14-15行），不符合专利法实施细则第十八条第三款的规定。申请人应当对说明书进行修改，在相应处写入具体技术内容。

申请人应当在本通知书指定的答复期限内对本通知书提出的问题逐一进行答复，必要时应修改专利申请文件，否则本申请将难以获得批准。申请人对申请文件的修改应当符合专利法第三十三条的规定，不得超出原说明书和权利要求书记载的范围。

申请人提交的修改文件应当包括：修改涉及部分的原文复印件，采用明显标记该复印件上注出所作的增加、删除或替换；重新打印的替换页（一式两份），用于替换相应的原文。申请人应当确保上述两部分在内容上的一致性。

审查员：侯红梅

代码：2921



# THE PATENT OFFICE OF THE PEOPLE'S REPUBLIC OF CHINA

To: Lungtin Int'l Intellectual Property Agent Ltd. Yushuang WANG		Issuing Date: March 7, 2008
Application No.: <b>200580008075.3</b>		
Applicant	Grundfos A/S	
Title of Invention	Method for Determining Faults During The Operation of a Pump Unit	

## THE FIRST OFFICE ACTION

(For PCT Application Entered the National Phase)

1. ☒ The applicant has filed a request for substantive examination. The examiner has proceeded the substantive examination on the above mentioned patent application for invention in accordance with the provisions of Article 35(1) of the Chinese Patent Law.  
☐ The Patent Office has decided to precede a substantive examination on the above mentioned patent application for invention in accordance with the provisions of Article 35(2) of the Chinese Patent Law.
  
2. ☒ The applicant requested to designate:  
the filing date 2004-02-11 in the EP Patent Office as the priority date.  
the filing date \_\_\_\_\_ in the \_\_\_\_\_ Patent Office as the priority date.
  
3. ☐ The following amended document(s) submitted by the applicant is (are) unacceptable, as the document(s) is (are) not in conformity with the provisions of Article 33 of the Chinese Patent Law:  
☐ the Chinese translation for the annexes of the International Preliminary Examination Report,  
☐ the Chinese translation for the amendment submitted under Article 19 of the Patent Cooperation Treaty,  
☐ the Chinese translation for the amendment submitted under Article 28 or 41 of the Patent Cooperation Treaty,
  
4. ☐ The examination is proceeded based on the Chinese translation of the international application originally filed.  
☒ The examination is proceeded on the basis of the following application documents:  
☒ the description,  
pages \_\_\_\_\_, pursuant to the Chinese translation of the international application originally filed.  
pages \_\_\_\_\_, pursuant to the Chinese translation for the annexes of the International Preliminary Examination Report.  
pages \_\_\_\_\_, pursuant to the Chinese translation for the amendment submitted under Article 28 or 41 of the Patent Cooperation Treaty.  
pages 1-12, pursuant to the amendment submitted according to Rule 51 of the Implementing Regulations of Chinese Patent Law.  
☒ the claims,  
Nos. \_\_\_\_\_, pursuant to the Chinese translation of the international application originally filed.

- Nos. \_\_\_\_\_, pursuant to the Chinese translation for the amendment submitted under Article 19 of the Patent Cooperation Treaty,
- Nos. \_\_\_\_\_, pursuant to the Chinese translation for the annexes of the International Preliminary Examination Report.
- Nos. \_\_\_\_\_, pursuant to the Chinese translation for the amendment submitted under Article 28 or 41 of the Patent Cooperation Treaty,
- Nos. 1-16, pursuant to the amendment submitted according to Rule 51 of the Implementing Regulations of Chinese Patent Law.

☒ the drawings,

pages 1-5, pursuant to the Chinese translation of the international application originally filed.

pages \_\_\_\_\_, pursuant to the Chinese translation for the annexes of the International Preliminary Examination Report.

pages \_\_\_\_\_, pursuant to the Chinese translation for the amendment submitted under Article 28 or 41 of the Patent Cooperation Treaty,

pages \_\_\_\_\_, pursuant to the amendment submitted according to Rule 51 of the Implementing Regulations of Chinese Patent Law.

☐ the abstract and the drawing for the abstract, pursuant to the Chinese translation of the international application originally filed.

☐ The following reference documents have been cited in this office action (their serial numbers will be referred to in the ensuing examination procedure):

Serial No.	Reference document( Number or Title)	Publication Date (or Filing date of interference patent applications)
1		
2		
3		

5. The conclusive opinion of the examination is as following:

☒ Description:

☐ The subject matter of the application falls into the scope, within which no patent right shall be granted, defined by Article 5 of the Chinese Patent Law.

☐ The description is not in conformity with the provisions of Article 26(3) of the Chinese Patent Law.

☐ The description is not in conformity with the provisions of Article 33 of the Chinese Patent Law.

☒ The drafting of description is not in conformity with the provisions of Rule 18 of the Implementing Regulations of the Chinese Patent Law.

☐ The drafting of description is not in conformity with the provisions of Rule 19 of the Implementing Regulations of the Chinese Patent Law.

☒ Claims:

☐ Claims \_\_\_\_\_ do not possess novelty provided by Article 22(2) of the Chinese Patent Law.

☐ Claims \_\_\_\_\_ do not possess inventiveness provided by Article 22(3) of the Chinese Patent Law.

☐ Claims \_\_\_\_\_ do not possess practical applicability provided by Article 22(4) of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 26(4) of the Chinese Patent Law.

- ☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 31(1) of the Chinese Patent Law.
- ☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 33 of the Chinese Patent Law.
- ☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Rule 13(1) of the Implementing Regulations of the Chinese Patent Law.
- ☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 9 of the Chinese Patent Law.
- ☒ Claims 1, 4-16 are not in conformity with the provisions of Rule 20 of the Implementing Regulations of the Chinese Patent Law.
- ☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Rule 21 of the Implementing Regulations of the Chinese Patent Law.
- ☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Rule 22 of the Implementing Regulations of the Chinese Patent Law.
- ☒ Claims 4-7, 10-14, 16 are not in conformity with the provisions of Rule 23 of the Implementing Regulations of the Chinese Patent Law.

The detail analysis for above conclusive opinion is described in the text of this office action.

6. On the basis of the above conclusive opinion, the examiner holds that:

- ☐ The applicant should make amendment in accordance with the requirements described in the text of this office action.
- ☒ The applicant should expound reasons for that the above mentioned patent application can be granted the patent right, and make amendments to the specification of which is not in conformity with the provisions as described in text of this office action; otherwise the patent right shall not be granted.
- ☐ The patent application does not possess any substantive patentable contents, if the applicant fails to expound reasons or the reasons expounded are not sufficient, this application will be rejected.

7. The applicant shall pay more attention to the matters as following:

- (1) In accordance with the provisions of Article 37 of the Chinese Patent Law, the applicant shall submit the response within four months from the date of receiving this office action. If the applicant fails to respond within the time limit without any justified reason, the application shall be deemed to have been withdrawn.
- (2) The amendment modified by the applicant shall be in conformity with the provisions of Article 33 of the Chinese Patent Law, and shall be submitted in duplicate copies and in format in accordance with the relevant provisions of the Examination Manual.
- (3) The applicant's response and/or amendment documents shall be mailed or submitted to the Receiving Department of the Chinese Patent Office; the documents which are not mailed or submitted to the Receiving Department do not possess legal effect.
- (4) The applicant and/or his (its) agent shall not come to the Chinese Patent Office to interview with the examiner without an appointment.

8. The text of this office action consists of a total of 3 sheets, and is accompanied by the following annexes:

- ☐ The copies of the cited reference documents consist of \_\_\_\_\_ sets and \_\_\_\_\_ sheets.

Examiner: Hongmei HOU (2921)

February 19, 2008

## The Text of the First Office Action

Application No.: 200580008075.3

The present application relates to a method for determining faults on operation of a pump assembly. Through the examination, the following examiner's opinions are proposed:

1. The examiner indicates a minor type error in claim 1 which will be amended at our ends.

2. The dependent claims 4-6 make a further definition about the technical feature "the detected hydraulic variable". However, the technical term "the detected hydraulic variable" is not recorded in the preceding claims.

Therefore, the dependent claims 4-6 are unclear, and thusly are not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

3. The parameter " $\omega$ " appears in claim 7 (please see lines 2 and 12 on page 3 of the Chinese version). However, the meanings of the parameter " $\omega$ " in two places are different.

The parameter " $I_r$ " appears in the equation (8), however, the meaning of the parameter " $I_r$ " is not explained.

Please be noted the applicant should make a reasonable explanation in the response. If the applicant wants to amend the claims, please be noted that the amendments should not go beyond the scope recorded by the original description and claims. At the same time, please be noted that the applicant should pay attention to the term "the angular speed of the rotor" in claim 7 (please see line 26 on page 3 of the Chinese claims) and the technical term "the rotational speed" in claim 8 (please see line 11 on page 4 of the Chinese



claims).

4. The term "preferably" appears in claim 8 (please see line 4 from the bottom of this claim of the Chinese version), which causes the protection scope of one claim different.

The term "the variables" (please see lines 1-2 of this claim of the Chinese version) appears in claim 8, and is further defined in claim 8, also the term "the measured hydraulic variables" is further defined in this claim. However, these terms are not recorded in the referred claim 7.

Moreover, one skilled in the art can not know which one is indicated by the terms "moment" and "the pump model".

Therefore, claim 8 is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

5. The technical feature "the variables" (please see lines 1-2 of this claim of the Chinese version) is further defined in claim 9. However, the feature does not appear in the referred claim 7. Therefore, claim 9 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

6. The term "preferably" appears in claim 10 (please see lines 2-3 of this claim of the Chinese version), which causes the protection scope of one claim different.

The technical feature "and the determined values are substituted into the equations according to claim 8, in a manner such that several fault variables ( $r_1-r_4$ ) result" appears in claim 10, however, the equations in claim 8 which refers to claim 7 do not record the fault variables ( $r_1-r_4$ ), also it is difficult for the person skilled in the art to ascertain how to educe the fault variables.

Therefore, claim 10 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

7. The term "preferably" appears in claim 11 (please see lines 2-3 of this claim of the Chinese version), which causes the protection scope of one claim different.

The technical features about "the type of fault" (please see lines 1, 6-7 of this claim of the Chinese version) and "predefined values" (please see line 6 of this claim of the Chinese version) are further defined in claim 11. However, these features are not recorded in the technical solution of the preceding referred claims 1-9.

Therefore, claim 11 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

8. The technical feature about "the type of fault" is further defined in claim 12 (please see line 1 of this claim of the Chinese version). However, the feature is not recorded in the technical solution of the preceding referred claims 1-9.

There is a table in claim 12. However, the meanings of the characters/numbers in the table are unclear.

Therefore, claim 12 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

9. The technical feature about "the measurement results" (please see line 2 of this claim of the Chinese version) and "the determined fault" (please

see line 3 of this claim of the Chinese version) are further defined in claim 13. However, these features are not recorded in the technical solutions of the preceding referred claims.

Therefore, claim 13 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

10. The technical feature "mechanical-hydraulic pump/motor model" (please see line 1 of this claim of the Chinese version) is further defined in claim 14. However, the feature "the mechanical-hydraulic pump/motor model" is not recorded in the technical solutions of the preceding referred claims 1-6.

The technical feature "the hydraulic system" (please see line 2 of this claim of the Chinese version) is further defined in claim 14. However, the feature "the hydraulic system" is not recorded in the technical solutions of the preceding referred claims.

Therefore, claim 14 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

11. Claim 15 does not indirectly refer to claim 7, and the parameter "Q" in its equation is unclear.

In addition, the feature "the installation" (please see lines 8 and 10 of this claim of the Chinese version) is further defined in claim 15. However, this feature does not appear in the referred claim 14.

Also, the parameter "P" (please see line 2 from the bottom of this claim of the Chinese version) is wrongly wrote, it should be written as "p".

Therefore, claim 15 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

12. The technical feature "the variables" (please see line 1 of this claim of the Chinese version) is further defined in claim 16. However, this feature is not recorded in the preceding referred claims 1-9, 11, 13-15.

The technical features "the mechanical-hydraulic equations" (please see line 10 on page 6 of this claim of the Chinese version), "the measured delivery pressure and measured delivery quantity" (please see line 13 on page 6 of this claim of the Chinese version) and "three variables" (please see line 15 on page 6 of this claim of the Chinese version) are further defined in claim 16. However, these technical features are not recorded in the preceding referred claims.

In case that claim 16 does not refer to claim 7, the meanings of the parameters "B", "Q", " $\omega$ " are unclear. In addition, the meaning of the parameter " $k_c$ " is the equation (19) unclear.

Therefore, claim 16 is unclear, and thusly is not in conformity with the provisions of Rule 20(1) of the Implementing Regulations of the Chinese Patent Law.

13. The dependent claims 4-7, 10-14, 16 which are multiple claims themselves refer to two or more preceding claims.

Therefore, the dependent claims 4-7, 10-14, 16 are not in conformity with the provisions of Rule 23(2) of the Implementing Regulations of the Chinese Patent Law.

14. There are some expressions about referring to claims in the

description of the present application (please see lines 7, 25-26 on page 1, line 26 on page 5, lines 14-15 on page 6 of the description).

Therefore, the drafting of the description is not in conformity with the provisions of Rule 18(3) of the Implementing Regulations of the Chinese Patent Law. The applicant should make some amendments about the description, and add the contents of claims into the corresponding parts of the description.

The applicant should make responses aimed at the questions indicated in this office action within the time limit specified by this notification. The applicant also should amend the application documents when necessary. Otherwise, the present application would not be granted a patent right. The amendments made by the applicant should be in conformity with the provisions of Article 33 of the Chinese Patent Law, i.e. should not go beyond the scope recorded by the original description and claims.

When submitting the amended documents, the applicant shall submit the following documents: 1. the copy sheets of the portion relative to the amendments in the initial application, wherein the added, deleted or substituted contents shall be marked in the copy sheets; 2. the reprinted replacement sheets to substitute for the corresponding portion of the initial application. The applicant shall insure that the contents of the above two portions are accordant.

Examiner: Hongmei HOU (Code: 2921)